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BULLETIN
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[No. 5.

White Mountain Willows.—I.

BY M. S. BEBB.

Plate LXXXI.

It has been my good fortune for seven consecutive summers to receive from Mr. Edwin Faxon, notes and critical observations on the White Mountain Willows, accompanied by specimens which for completeness have never been equalled except by those of Mr. Oakes. No other botanist has given these plants so much study afield, no one has ever before, by persistent exploration, continued year after year, become so familiar with their growth and development under different conditions and the extent of their distribution throughout the limited area which they occupy. Having obtained my friend's permission to make use of these notes, I trust the readers of the BULLETIN will commend my judgment in allowing them to retain all that interesting fullness of detail which they received originally in the unreserve of private correspondence.

If while editing them I am able at the same time to contribute somewhat to a better understanding of the species to which they relate, it will readily be seen how far I am still indebted to Mr. Faxon for the advantage derived from his satisfactory and instructive collections.

SALIX BALSAMIFERA, Barratt.

While looking over the Willows in the herbarium of the Philadelphia Academy of Natural Sciences, in the spring of 1879, I came most unexpectedly upon a specimen of this species which had been collected in the White Mountains more than half a century ago! The whole mount was curious and antiquated. The sheet of hand-made paper was stained and yellow with age. The specimen, a mere fragment of leaves only, was held securely in place by a single thrust of one of the round-headed, hand-made

pins of our grandmothers, which ran through the ticket under specimen and sheet and back through the ticket again. "Salix —? Bank of Ammonoosuc, White Hills, N. H., H. Little, Aug., 1823!" Here we have, I doubt not, the oldest herbarium specimen extant of *S. balsamifera*. The collections of Drummond and Dr. Richardson, which gave Barratt his types, were made later, though only by a few years, and those of Bourgeau (upon which Andersson founded his *S. pyrifolia*) belong to our own day.

I immediately wrote Mr. Pringle, who was at this time giving to the exploration of the White Mountains the same energy and intelligent sharp-sightedness which have since distinguished his herborizations in Mexico, telling him what I had found. By return mail came the confident assurance that the plant would be rediscovered, followed in a few days, sure enough, by fresh specimens for verification.

On June 13th, 1879, Mr. Pringle, in company with Mr. C. E. Faxon, found *S. balsamifera* on the Saco, near the Crawford House, after having searched for it in vain along the Ammonoosuc. About a fortnight later, in the same summer, Mr. E. Faxon went over the ground very carefully and "succeeded in finding another clump of females on the south branch of the Ammonoosuc, about three-fourths of a mile from Mr. Pringle's habitat, and a very fine cluster of males on the east branch of the same stream, about four miles further north, very near the railroad from Fabyan House to the base of Mt. Washington."

As late as 1885 Mr. Faxon writes: "Although I have made frequent visits to the White Mountains since that year, I have not found any other habitats for this species," adding, "The pistillate cluster near Saco Lake and the plant north of Crawfords are in not quite so wet ground. They are both within a few feet of the carriage-road, and I think have been much injured in the winter by being broken down by snow, or by being driven over when partly covered by snow. One is very near a little brook that flows into the Ammonoosuc, and the other near a little pond, originally a mere bog-hole, but now by damming converted into a pond and dignified with the name of 'Lake.' The height of all three localities is about 1,900 feet above the sea."

It was during this season, 1885, that Mr. Faxon found "a very

much battered alpestrine form on Mt. Lafayette, alt. 4200 feet, beside the bridle path near Eagle Lake."

On the fourth of June of the following year our friend started from home for a tour of the White Mountains and returned on the 29th. The first few days were spent on the southern shore of Squam Lake, at Holderness, N. H., south of the whole range of White and Franconia Mountains. Here, at an elevation of about 500 feet above the sea, he found a little bush of *S. balsamifera*, that had been cut off near the ground and then sent up new shoots. Others doubtless occur in the same neighborhood but none could be found. In the Franconia Notch, 30 miles further north "three good clusters were found in a grassy meadow near the carriage road."

We come now to last summer, when the search for this willow, which Mr. Faxon has carried on year after year with unabated enthusiasm, was rewarded by the discovery of the plant in abundance. He writes as follows:—"Franconia, N. H., June 21, 1887. I have been here a fortnight and have found the *Salix balsamifera* quite common in and around the Larch swamps. I came too late for the male flowers, as the altitude is not more than 1,000 feet and the valley is quite warm in summer. With just now the fertile capsules opening and coalescing into huge, soft balls of whitest wool, almost hiding the beautiful red and maroon leaves of the growing tips, it is certainly the handsomest willow I ever saw."

S. balsamifera, Barratt. A much and irregularly branched shrub, 4 to 10 feet in height, sometimes growing in clumps of thickly-set, straight, upright stems, 1 to 2 inches in diameter at base, not much branched till near the top; bark of old stems rather smooth, dull gray; branches olive, recent twigs reddish brown, or on the sunny side shining chestnut; leaves ovate or ovate-lanceolate, 2 to 3 inches long, 1 to 1½ inches wide, broadly rounded and usually subcordate at base, acute or acuminate, at first very thin, subpellucid, and of a rich reddish color; at length rigid, dark green above, paler or glaucous beneath and beautifully reticulate-veined, glabrous on both sides or with a few scattered silken hairs when just expanded; margin glandular-serrulate, petioles long and slender, stipules noticeably absent throughout, or on the most vigorous shoots minute and evanescent; aments borne on slender leafy peduncles; the male densely flowered,

very silky, obtuse cylindrical, 1 to 1½ inches long, scales rosy, anthers at first reddish, becoming deep yellow; female ament less silky, becoming very lax in fruit, 2 inches or more long; capsules rostrate from a thick base, the conspicuously long and slender pedicels six to eight times the length of the nectary; style short, bifid, stigmas spreading, thick, two-lobed. "No. 53, Herb. H. B. and T." (v. s. in Herb. Torrey). *S. cordata*, var. *balsamifera*, Hook., Fl. Bor.-Amer. 2, p. 149 (teste Herb. Hook.) *S. pyrifolia*, And. Monog., p. 162. DC. Prod., xvi., 2, 264 (v. s. Herb. A. Gray.)

The following will serve better than any comprehensive description to indicate the range of variation.

typica. Leaves ovate, 2 to 3 inches long, short pointed or the lower obtuse, rounded at base, at length rigid and glaucous beneath, with raised reticulate veins, minutely glandular-serrulate; fertile aments very loose, leaves of the peduncle few and large. This is the prevailing northern form.

vegeta. Leaves broadly lanceolate, 4 to 5 inches long, acute or acuminate, truncate or cordate at base, coarsely and irregularly repand-toothed, paler beneath; aments less spreading, not so leafy at base.

lanceolata. Leaves lanceolate, 2 to 4 inches long, ½ to ¾ inch wide; aments more slender, otherwise as in *f. typica*.

alpestris. Low bush, 2 to 4 feet high; leaves small, 1 to 2 in. long, lanceolate, pointed at both ends, rather coarsely and irregularly serrate, green both sides; male ament slenderly cylindrical, less silky. Eagle Lake, Mt. Lafayette, alt. 4,200 feet; also on the coast of Labrador.

In open swamps and along streams from Labrador and Nova Scotia west to the Saskatchewan Valley. Chateau and Squaw Islands, Labrador, "a small shrub, 1 to 2½ feet high, growing near rivulets in wet, peaty soil," *J. A. Allen*. Truro, Nova Scotia, *J. Macoun* and *Burgess*. Kent Co., New Brunswick, *Rev. James Fowler*. White Mountains, N. H., *H. Little*, 1823; rediscovered by *Mr. Pringle* and *Mr. C. E. Faxon*, afterwards found in abundance at Franconia by *E. Faxon*. Holderness, N. H., and Westmore, Vt., *E. Faxon*. Province of Quebec, *Prof. Dudley*. Flint, Mich., *Dr. Clarke*. Nepigon River, Ontario, and in various places north of Lake Superior, *Professors Macoun* and *Bailey*. Vermilion Lake, Minn., *Bailey*. Manitoba, *J. M. Macoun*. Cumberland House, *Drummond* (1825). Lake Winnipeg and the Saskatchewan, *Richardson*, *Bourgeau*. A well defined species not shading off into any other, not even into its nearest congener,

S. cordata, from which it is always distinguished by the peculiar texture and veining of the leaves, absence of stipules and very loosely flowered fertile aments.

EXPLANATION OF PLATE LXXXI.

1-5. *Salix balsamifera*, *forma typica* ; 1. leaf, 2-3 aments, 4, capsule $\times 8$, 5 stamens $\times 8$; 6. var. *vegeta* ; 7. var. *lanceolata* ; 8. *alpestris*.

Linnæus and his Genera of Plants.

BY EDWARD L. GREENE.

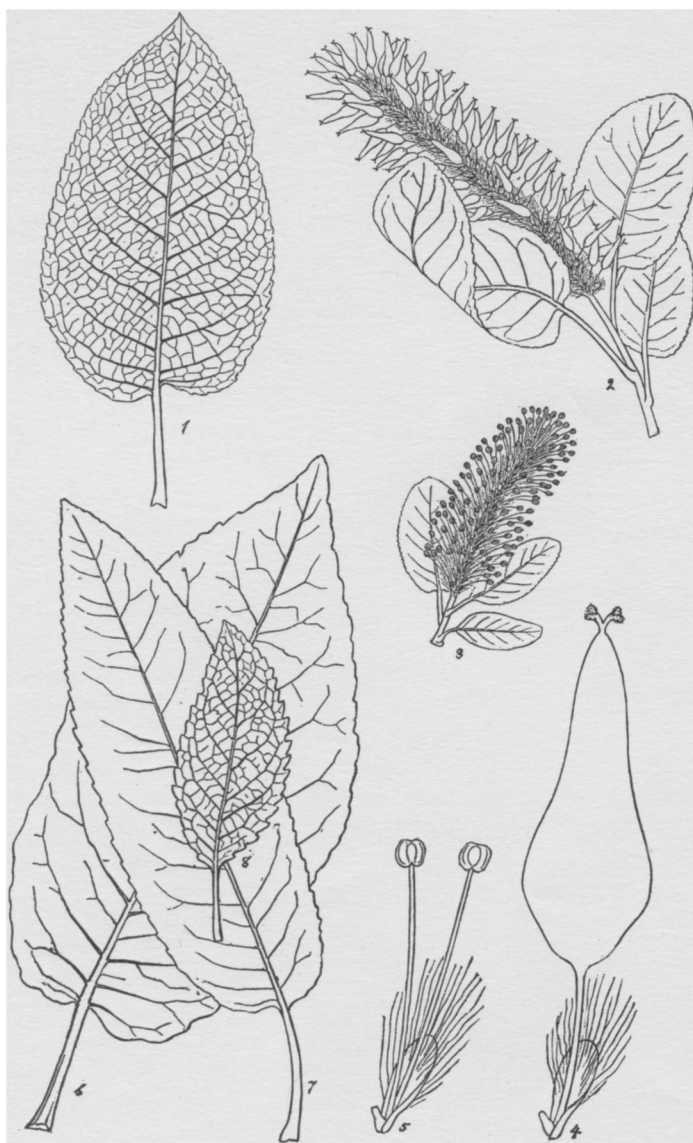
In the October number of this journal I have said that Linnæus "now and then seemed affected by a singular blindness to generic characters in plants." The remark was not thrown out at a venture, nor yet with any thought of making a sensation in circles where there might be supposed to linger a shade of that Linneolatry which, up to not more than two generations ago, ruled so largely the mind and the soul of the world botanical.

Before saying more I must do myself the justice of expressing my deep and sincere admiration for some sides of the character of Linnæus, and for much of his work in botany. Without scholarship, as compared with a goodly number of his botanical forerunners and contemporaries, and not scrupulous regarding the rights of others, he was still a great man, and a prince among naturalists ; and no true botanist can ever fail to have something like veneration for the name of him who gave to the all important subject of scientific nomenclature its most immortal treatise, the first edition of the *Species Plantarum*, and who furnished us, in his *Flora Lapponica*, the most charming book of botany ever written. For their Linneolatry our forefathers are excusable, and we name not their ruling passion by way of reproach ; but, as a scientific cultus, it is dead, or nearly so, and it has entailed consequences not always wholesome, which it will take some labor of future generations to correct.

In considering what were the gifts of Linnæus* regarding in-

* I have been accustomed to write Linné rather than Linnæus, following the usage of most modern writers, even the Scandinavian. But that is the French writing of the name, and Dr. Asa Gray, it is well known, objected to it in English. His objections seem to me well taken. The Swedish name, which was Lind, has never been used, and between the French Linné and the Latin Linnæus the latter seems the better choice for us who write English, notwithstanding that usage more and more favors the former.

[NOTE.—In justice to the author of this paper we must state that it has been in type since last November, having been since then revised and abbreviated by him.—EDS.]



Salix balsamifera, Barratt. M. S. Bebb.